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ABSTRACT

Attention deficits and attention deficit-hyperactivity disorder (AD-HD) are regarded as relatively common disorders among school-age children, but the literature reveals several confounding factors with the standard assessment techniques for the disorder. Using a structured thematic apperception technique (the TEMAS Apperception Test of G. Costantino et al., 1988) to measure attention to pictorial stimuli depicting characters, events, settings, and covert psychological conflicts, a study was conducted with 163 normal Hispanic, Black, and White school-age children and 95 Hispanic, Black, and White child and adolescent outpatients with AD-HD. The AD-HD children were significantly more likely than were the normal children to omit information in the stimuli about characters, events, settings, and psychological conflicts. Differences between the groups were large and persistent in the presence of structured inquiries by the test examiners. Results suggest the potential utility of structured thematic apperception techniques for the assessment of AD-HD to facilitate clinical (DSM-III-R) diagnosis and to invite closer scrutiny in carefully controlled validity studies. Three tables and one figure present study data. (SLD)

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Assessment of Attention Deficit Disorder Using a Thematic Apperception Technique

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Running Head: Attention Deficit

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ABSTRACT

Attention Deficits are regarded as a relatively common disorder (AD-HD) among school age children, but the literature reveals a number of confounding factors with standard assessment techniques of the disorder. Using a structured thematic apperception technique (the TEMAS test) to measure attention to pictorial stimuli depicting characters, events, settings, and covert psychological conflicts, a study was conducted with 152 normal and 95 clinical Hispanic, Black and White school age children. Results revealed that the AD-HD children were significantly more likely than normal children to omit information in the stimuli about characters, events, settings, and psychological conflicts. Differences between the groups were large and persistent in the presence of structured inquiries by the test examiners. Results suggest the potential utility of structured thematic apperception techniques for the assessment of AD-HD, eventually to facilitate DSM-III-R diagnosis, but also to invite closer scrutiny in carefully controlled validity studies.

Attention deficits are regarded as relatively common among school age children and are considered important in explaining children's behavioral and learning problems in school settings, but valid psychometric procedures to facilitate a diagnosis of attention deficit disorder are seriously lacking (Ostrom & Jenson, 1988). According to one source, there are approximately 700,000 American children, or 3.6% of the elementary school and 1.5% of the junior high school populations, who have a DSM-III diagnosis of attention deficit disorder (ADD) with or without hyperactivity (Barkley, 1982). Other studies have estimated that the prevalence of ADD is much higher, as much as 20-24% among school age children, with discrepant male/female prevalence rates reportedly ranging from 3.1 to 9.2 (Ostrom & Jenson, 1988). Although ethnic minority children generally are characterized as at greater risk of mental disorder than their non-minority counterparts (Rogler, Malgady, & Rodriguez, 1989), little is known about the distribution of attention deficit disorder across different populations of ethnic minority children. The purpose of the present study was to explore the feasibility of scoring apperception test protocols for attention to stimulus details in order to assess attention deficit disorders among Hispanic, Black, and White children.

The concept of attention deficits carries a somewhat complex and ambiguous legacy. Historically, the concept of attention deficits can be traced to minimal brain damage, to hyperkinesis, to the DSM-III ADD

classification, and currently to the DSM-III-R AD-HD classification (Lahey, et al., 1988). The DSM-III (1980) established the first diagnostic definition of attention deficit disorder, with or without hyperactivity (ADD/H), which focused on three criteria: sustained attention, impulsivety, and motor hyperactivity. In the DSM-III-R (1987) a new diagnosis is the attention deficit-hyperactivity disorder (AD-HD), which is given to a child who exhibits at least 8 of 14 symptoms in the collective areas of impulsivity, attention, and motor hyperactivity. In addition, a tentative diagnostic category labelled "undifferentiated attentional deficit disorder" (UADD) was introduced for children who present deficits in selective attention without hyperactivity.

Recently, specific deficits of attention associated with poor school achievement and dysfunctional behavior have implicated selective attention as the critical feature of the disorder. However, there are conflicting theoretical views regarding the optimal method of defining and measuring selective attention (Ostrom & Jenson, 1988). Despite greater diagnostic and conceptual clarity, difficulty remains with regard to objective measurement and thus in achieving a reliable and valid diagnosis of AD-HD. For example, in clinical interview or mental status examination, the AD-HD child is not likely to display a full behavioral repertoire for the diagnostician. In the past, therefore, diagnosis was rendered largely based on second hand reports of the child's behavior from parents and teachers, not from the diagnostician's first hand observations

or assessments of the child.

More recently, a variety of objective assessment strategies have been developed, but each is not without shortcomings. A widely used instrument was developed by Conners (1969, 1973) to isolate factors in globally defined "adjustment reaction of childhood and adolescence." The Conners scale may facilitate a diagnosis of AD-HD, but reliability is problematic since there are only two items on the scale that assess attention deficits. Another problem with this scale is that the child's behavior is rated by parents or teachers, which does not afford direct behavioral observation, and the items may bias raters in describing the child in global and subjective manner (Ostrom & Jenson, 1988; Ross & Ross, 1982). A second objective method to diagnose AD-HD children with academic and behavior problems is Kaufman's (1979) "freedom from distractibility factor," the third WISC-R factor, composed of the Arithmetic, Digit Span, and Coding subtests. The literature on the WISC-R third factor has been criticized because the studies have focused on patterns of achievement instead of attention deficits (Ostrom & Jenson, 1988).

Another measurement technique is based on Hagen and Hale's (1973) Central-Incidental Learning Task, which avoids the problems associated with verbal interpretations of stimuli that are common among learning disabled or AD-HD children. In this task children are presented a series of paired pictures on cards and are instructed to remember

the central placement of a picture in each pair (central learning), and to ignore the irrelevant picture (incidental learning). Later they are asked to match the two pictures which were presented on the same card. The test of incidental learning, as an assessment of attention deficit is the ability to correctly match the initially relevant and irrelevant pairs. Copeland and Wisniuski (1981) have argued that this task is confounded with memory, which can be a frequent complication with LD and AD-HD children. Although the task is performed independent of verbal ability, it is not necessarily a valid assessment of attention deficit independent of cognitive ability. In turn, these investigators suggested using a speeded classification task to identify attention deficits in hyperactive and distractable children. Using geometric stimuli, children's classifications according to a central distinguishing feature are scored for time and accuracy. Performance on this task was shown to discriminate significantly between ADD and normal children. However, some problems with this task are : possible intellectual confounds (e.g., ability at concept formation), persistence, motor performance, and augmentation through overt or covert verbal rehearsal. If children with AD-HD complications such as LD problems or neurological deficits are tested by such a procedure, they may show poor sorting time and accuracy scores because of impaired concept formation strategies, low thresholds of persistence, and lack of verbal rehearsal--not necessarily because of attention deficits. Thus, the basic problem for

assessment remains: We need a technique to assess attention deficits independent of other cognitive abilities of the child.

The purpose of the present study was to explore the feasibility of assessing attention to perceptual details of stimuli composing a structured apperception test to discriminate between AD-HD and normal children, without assessing memory, verbal comprehension or reading skill, psychomotor coordination or speed, verbal rehearsal, or concept formation. This study examined whether attention deficits would be evidenced in a projective test protocols, since AD-HD children should be more likely to omit characteristics of pictorial test stimuli. This hypothesis is associated in part with the findings of the WISC-R subtest, Picture Completion, which is reported to be correlated with "attention to detail" (Kaufman, 1979).

The feasibility of using the TEMAS apperception test (Costantino, Malgady, & Rogler, 1988) to assess attention deficits was investigated in this research for two reasons. First, unlike traditional thematic apperception and projective techniques which have used ambiguous stimuli to bypass ego defenses to uncover latent drives and motives (Murstein 1963), the TEMAS stimuli were developed from the notion that diminished ambiguity and increased structure facilitate verbal fluency and yield a better understanding of the respondent's level of functioning (e.g., Epstein, 1966; Meichenbaum, 1977; Sobel, 1981).

The TEMAS stimuli are highly structured, unambiguous, and familiar, depicting bipolar situations such as relating to parents versus peers, aggressive versus cooperative behavior, and delayed versus immediate gratification. Children tell a story about the TEMAS stimuli relating the identity of the characters, the setting, the event taking place, and how the conflict posed is ultimately resolved. Of particular relevance to identification of attention deficits is the child's omission of these stimulus details in a projective testing situation, which from an interpersonal psychological perspective is indicative of selective inattention (Sullivan, 1953). Chronic use of this defense mechanism interferes with the learning process and impedes cognitive development, and may be manifested in the development of an AD-HD diagnosis.

The second reason was that the TEMAS apperception test has been standardized and validated in two parallel versions, one for ethnic minority and one for non-minority children. Since there is a lack of research on AD-HD among ethnic minority children, the parallel minority and non-minority TEMAS tests, scored for omission of stimuli features, could be useful technique for discriminate normal and AD-HD in three ethnic groups: Hispanics, Blacks, and Whites.

METHOD

Participants

The participants in the study were child and adolescent outpatients (N=95) from mental health centers and students (N=163) from public

schools in New York City. In the public schools sample, 71 Hispanic, 40 Blacks and 52 Whites were selected from three different schools in Brooklyn, New York. In the clinical sample, 35 Hispanic outpatients were selected from a community mental health center in Brooklyn, 25 Black outpatients were selected from a mental health center in Manhattan, (Harlem), and 35 White outpatients were selected from a general hospital's psychiatric department in Brooklyn.

With respect to the occupational scale of Hollingshead's Index of Social Position, all examinees were from low to lower middle class families. The father was not present in the majority of the Hispanic and Black households but was present in majority of the White households.

The Hispanic, Black and White public school children comprised a subgroup of outpatients previously reported in other studies (Costantino, Malgady, Rogler & Tsui, 1988; Costantino, Malgady, Bailey, & Colon, 1988). The outpatient sample was selected after review by a clinical psychologist, for presenting problems of distractibility, short attention span, hyperactivity, disrupting behavior, aggressive behavior, and academic problems. All clinical children who met the DSM-III-R criteria were labelled as AD-HD. Whereas all clinical examinees presented academic problems according to teacher and parental report, no normal children in the study were undergoing psychotherapy nor presenting significant behavior or academic problems. Examinees ranged from 7-15 years old, with a mean of 11.2 ($\underline{SD}$ = 2.08).

The TEMAS thematic apperception test, consisting of 23 stimuli depicting minority characters (Minority Version) and non-minority characters (Non-Minority Version) was individually administered to all examinees by an examiner of the same ethnicity and race. Hispanic and Black children were administered the Minority Version, and the White children were administered the Non-Minority Version. Examinees told stories in response to each picture for 2-5 minutes, relating who was in the picture, how they were related, what they were doing, where the situation was taking place, what they did before, what they will be doing, and how the main character felt at the end of the story. The TEMAS protocols were scored according to standardized instructions and the objective scoring system described in the Technical Manual (Costantino, Malgady, & Rogler, 1988).

In order to assess attention deficit, the 23 stimuli each were scored by tallying omission of information in the stories concerning (a) main character, (b) secondary characters, (c) events, and (d) setting. In addition, when the conflict in the stimuli was not recognized or acknowledged (presumably also due to lack of attention) the stories were scored as attention deficit. The tally of omissions in each of the above categories were then averaged across the 23 stimuli--the data therefore reflect the probability of an omission of stimulus detail or of conflict.

RESULTS

Results of data analysis for Hispanic examinees are presented in Table 1, which shows the mean and standard deviation of both AD-HD and normal groups, and the outcome of t-tests of the difference between the group means (two-tailed probabilities). Table l indicates that in all perceptual omission categories (main and secondary character, event and setting), the AD-HD Hispanic group scored significantly higher than the normal public school group. In the AD-HD group omissions were evident 11% to 74% of the time (across stimuli), while the corresponding percentages ranged from 3% to 32% in the normal group. Although conflict was omitted more often in the AD-HD group than in the normal group, this difference (only 3%) was not statistically significant.

Insert Table 1 about here

Similarly, results of the data analysis for Black examinees are presented in Table 2, which indicates that Black AD-HD children scored significantly higher in perceptual omission categories of secondary character, event, and setting. Whereas the AD-HD group showed higher perceptual omissions in the categories of main character and conflict, the differences were not statistically significant. In the AD-HD group omissions was evident 4% to 78% of the time, while the corresponding percentages ranged from 3% to 16% in the normal group.

Insert Table 2 about here

Results of the data analysis for white examinees are presented in Table 3, which indicates that in all perceptual omission categories (main character, secondary character, event, setting and conflict), the AD-HD group scored significantly higher than the normal public school group. In the AD-HD group, omissions were evident 25% to 37% of the time, while the corresponding percentages ranged from 22% to 23% in the normal group.

Insert Table 3 about here

In comparing the results of Hispanic, Black and White children, a notable finding is that the standard deviations are much lower within White groups across all perceptual categories. A comparison of mean omissions by ethnic group is facilitated by Figure 1, which shows that the White AD-HD children have substantially fewer event and secondary character omissions than Hispanic and Black AD-HD children, but more main character and conflict omissions. The three groups are relatively comparable in terms of setting omissions. This pattern of findings is consistent with the comparison of normative data on Hispanic, Black and White children reported in the TEMAS Technical Manual (Costantino, Malgady, & Rogler, 1988).

Insert Figure 1 about here

DISCUSSION

Assessment of AD-HD is largely by indirect information through a clinical interview of children's parents and teachers. Alternately, objective techniques have been sought, such as teacher and parent rating scales, incidental learning tasks, and speeded classification tasks. All such techniques, however, are potentially confounded either by underlying cognitive, verbal, or neurological problems which may beset AD-HD children, thus precluding a valid assessment of "true" attention deficit. The present study applied an old technique to a new problem, by studying attention to projective test stimuli. Results indicated that Hispanic, Black and White AD-HD children are more likely to omit details about the characters, events and settings of pictorial stimuli than are normal children. However, a significant difference was noted with respect to their recognition of psychological conflicts depicted in the TEMAS stimuli only in the White sample; moreover, both groups of White children omitted conflicts substantially more often than either Black or Hispanic children. Psychological conflicts are pictorially represented in a concrete fashion in the TEMAS cards, but they may require ability to abstract. Hence, this cognitive function may not be suitable for discriminating between

AD-HD and normal children.

The TEMAS projective technique affords direct observation of the child's behavior and an objective scoring system. Furthermore, unlike other experimentally devised tasks to assess attention deficit disorders the projective test does not involve comprehension or reading skills since the stimuli are pictorial, and verbally inarticulate children are not penalized for their deficit in scoring the stories. Simple recognition of details is required for scoring a correct response on the test protocol, regardless of the quality of language use within which the response is embedded. Memory is not a confounding influence on performance since the stimuli remain in front of the children while they are telling their stories, and the examiner prompts the examinees if information about the four basic questions is omitted. Clearly, speed and motor characteristics are irrelevant to performance on the projective test as well.

It could be argued that perhaps the greater tendency toward omission of stimulus details is enhanced in the AD-HD group because the stimuli are complex, and they must follow or comply with four commands. Nevertheless, even if AD-HD examinees were more likely to forget the four questions their stories should answer, the examiner reminded them with prompts. Indeed prompting was three times more likely to be required in the AD-HD group than in the normal group (i.e., repeating the four basic questions, once each as needed) but prompting was insufficient in accounting for the differential performance of the two groups.

The use of a projective testing with structured stimuli and with an objective scoring system recording attention to perceptual details in the stimuli is an innovative technique for discriminating AD-HD children from normals. It is, of course, critical that closer scrutiny be paid to the technique, and alternate explanations of the findings be explored. For example, the encouraging findings and rationale for this novel approach to AD-HD assessment invites a critical look at potentially confounding variables underlying performance on the TEMAS test. If the projective approach to AD-HD assessment is to prove useful, we must have assurance in the form of carefully controlled validity studies that the assessment is made of attention deficit and not of other factors correlated with test performance.

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Author Notes

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Table 1

Means, Standard Deviations and t-tests for AD-HD vs. Public School Hispanic Children on TEMAS Omissions

	ADD-HD Group		Normal Group		
Category	M	SD	M	SD	t (df = 104)
Main Char	.113	.150	.032	.074	4.03***
Sec. Char	.539	.272	.222	.153	8.49***
Event	.738	.398	.322	.216	7.62***
Setting	.376	.226	.152	.143	6.98***
Conflict	.092	.095	.067	.069	1.86

*** $p < .001$

Table 2

Means, Standard Deviations and t-tests for AD-HD vs. Public School Black Children on TEMAS Omissions

	AD-HD Sample		Normal Sample		
Category	M	SD	M	SD	t (df= 63)
Main Char.	.040	.084	.032	.066	.46
Sec. Char	.610	.322	.158	.128	8.15***
Event	.783	.344	.147	.159	10.43***
Setting	.362	.156	.079	.087	9.76***
Conflict	.092	.130	.080	.100	.44

*** p <.001

Table 3

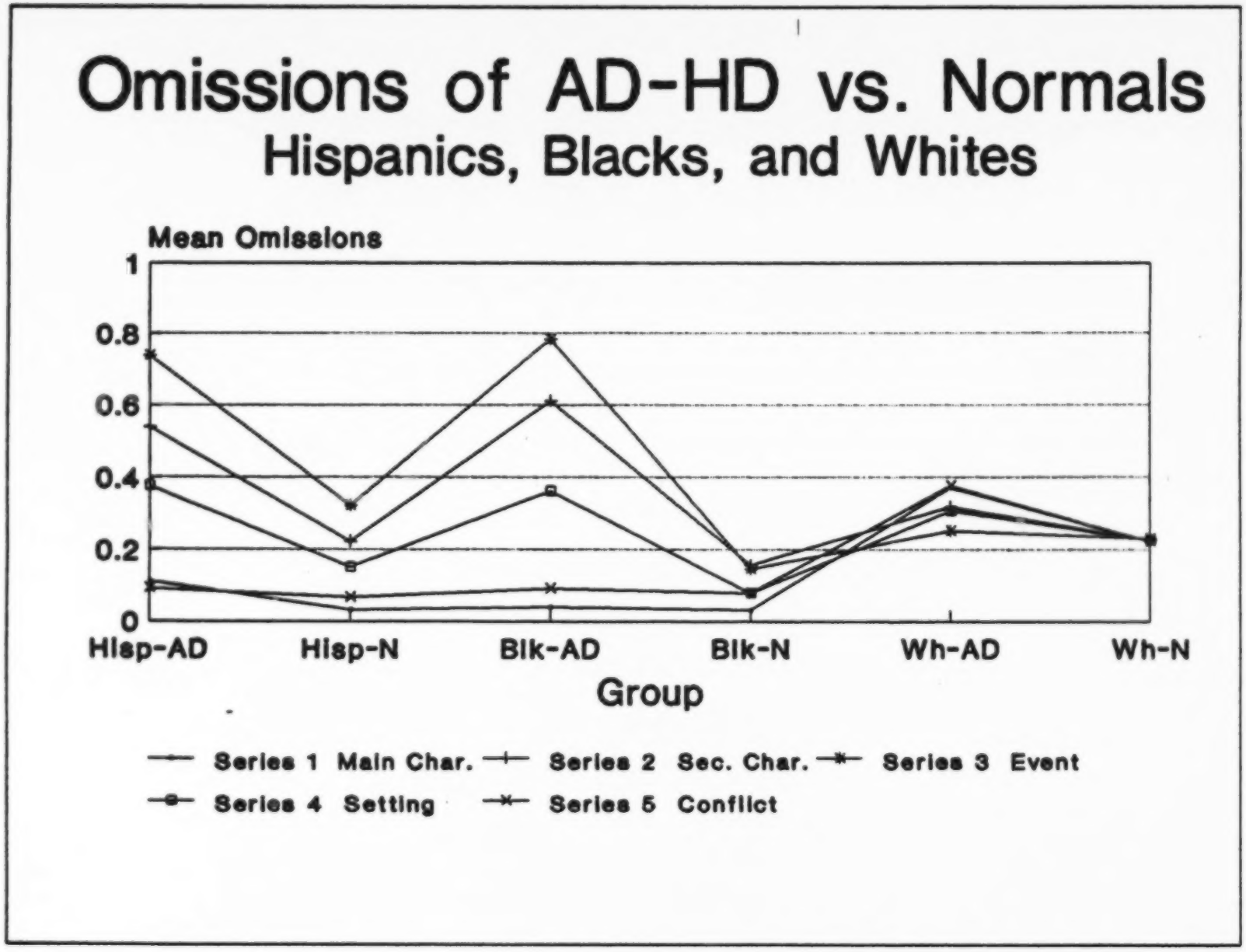
Means, Standard Deviations and t-tests for AD-HD vs. Public School White Children on TEMAS Omissions

	AD-HD Sample		Normal Sample		
Category	M	SD	M	SD	t (df = 85)
Main Char.	.372	.018	.223	.003	55.95***
Sec. Char	.318	.050	.225	.004	12.78***
Event	.253	.070	.231	.004	2.24**
Setting	.308	.049	.227	.004	11.39***
Conflict	.376	.029	.222	.003	36.43***

*** p <.001

** p <.05

FIG. 1


Omissions of AD-HD vs. Normals
Hispanics, Blacks, and Whites
Mean Omissions
1
0.8
0.6
0.4
0.2
0
Hisp-AD
Hisp-N
Blk-AD
Blk-N
Wh-AD
Wh-N
Group
Series 1 Main Char.
Series 2 Sec. Char.
Series 3 Event
Series 4 Setting
Series 5 Conflict